

## CLAIMS:

1. (Amended) A field-effect transistor, comprising:
  - a ferromagnetic layer, having a film thickness of 50 nm or less, which is made of a Ba-Mn oxide showing ferromagnetism at 0°C or higher;
  - a dielectric layer made of a dielectric material or a ferroelectric material, said ferromagnetic layer and said dielectric layer being bonded to each other, wherein the field-effect transistor has a bottom-gate structure.
2. The field-effect transistor as set forth in claim 1, wherein the ferromagnetic layer is made of a Ba-Mn oxide whose composition is represented by  $(\text{La}_{1-x}\text{Ba}_x) \text{MnO}_3$  where  $x$  satisfies  $0.05 < x < 0.3$ .
3. The field-effect transistor as set forth in claim 1, wherein the ferromagnetic layer is made of a Ba-Mn oxide whose composition is represented by  $(\text{La}_{1-x}\text{Ba}_x) \text{MnO}_3$  where  $x$  satisfies  $0.10 < x < 0.3$ .
4. The field-effect transistor as set forth in claim 1, 2, or 3, wherein the dielectric material or the ferroelectric material is  $\text{BaTiO}_3$ ,  $\text{SrTiO}_3$ ,  $(\text{Ba}_{1-y}\text{Sr}_y) \text{TiO}_3$ ,  $\text{PbTiO}_3$ ,  $\text{Pb}(\text{Zr}_{1-z}\text{Ti}_z) \text{TiO}_3$ , or  $\text{Al}_2\text{O}_3$ , where  $y$  satisfies  $0 < y < 1$  and  $z$  satisfies  $0 < z < 1$ .
5. The field-effect transistor as set forth in claim 1, 2, or 3, wherein the dielectric material or the ferroelectric material is  $\text{BaTiO}_3$ ,  $\text{SrTiO}_3$ ,  $(\text{Ba}_{1-y}\text{Sr}_y) \text{TiO}_3$ ,  $\text{PbTiO}_3$ , or  $\text{Al}_2\text{O}_3$ , where  $y$  satisfies  $0 < y < 1$ .
6. (Deleted)